13.6 Normal Operations

13.6.1 General

Day-to-day operations are carried out by the various plant organizations. Each organization, within its assigned area of responsibility, operates with some degree of independence and freedom from close supervision, yet their actions are closely coordinated to best achieve the common purpose.

The Site Vice President, BFN, issues procedures governing employee actions and establishing standards for plant activities. Additionally, standard NPG administrative procedures are issued by the Vice President Nuclear Support which are applicable to all TVA Nuclear plants. Managers of principal organizations issue instructions governing activities under their cognizance. The plant manager issues instructions which contain administrative restrictions and station requirements established to ensure safe operation of the plant within the limits set by the facility licenses and technical specifications. They provide that plant activities will be conducted in a manner to protect the general public, plant personnel, and equipment.

A formalized system of written procedures is employed conforming to the requirements of the Nuclear Quality Assurance Plan (TVA-NQA-PLN-89-A). Procedures covering plant activities which might adversely affect safety are put into effect only after being reviewed and approved by appropriate members of the plant staff as specified in the NQAP. These activities include operation, maintenance, testing and modifications.

The Plant Operations Review Committee (PORC), is responsible for reviewing proposed changes as outlined in the NQAP. The plant manager has the responsibility to ensure that safety related procedures prepared by his staff or submitted to him by other organizations receive required reviews and approvals before authorizations are issued.

There is, in addition to planned changes in the plant and procedures, the area of accidental or gradual changes in plant equipment characteristics or conditions. Each supervisor and employee has the responsibility to be continually alert for such changes and for reporting them upon detection. The periodic inspection of plant equipment and the continuing review and analysis of operating data from plant logs, instruments, and tests provide regular sources of information on plant conditions.

13.6.2 Normal Operating Instructions

Normal Operating Instructions include those procedures for individual system operation, including precautions, preoperational requirements, startup, and

shutdown; integrated operations for major plant activities, including startup, shutdown, and refueling; general equipment operation, such as valves and electrical breakers; responses to annunciators; anticipated equipment or system abnormalities; layup of systems; and instructions for operation during special circumstances to compensate for changed plant conditions (usually used only once for those special conditions).

13.6.3 Emergency Operating Instructions

As a result of the accident at the Three Mile Island Nuclear Plant, the NRC required the upgrade of Emergency Operating Instructions (EOIs) from event based procedures to symptom-based procedures. Symptom-based procedures are procedures which do not require the operator to diagnose the event in order to be able to correctly respond to the event. Instead, the operator responds to symptoms that result from the initiating event(s) and attempts to control these symptoms within established limits. Browns Ferry EOIs are symptom-based procedures and are based on the Boiling Water Reactor Owners Group (BWROG) Emergency Procedure Guidelines (EPGs). The EOIs specify actions necessary to address any event including less than design basis events, design basis events, and beyond design basis events (e.g., multiple equipment failures) and specifies limits to assure continued safe operation of the plant.

The operator monitors the general state of the plant. If any of the entry conditions for the EOIs are met, the operator takes actions to control reactor power, reactor pressure, reactor water level, primary containment pressure and hydrogen concentration, drywell temperature, pressure suppression pool temperature, pressure suppression pool water level, and secondary containment temperatures, water levels, and radiation levels. The EOIs are used until either directed out by the EOIs or when the operator concludes that an emergency condition no longer exists. All operating personnel through training and experience learn to recognize and evaluate impending failures or malfunctions and to initiate proper corrective actions.

The EOIs are used to train the operating personnel and make them aware of the accidents or situations that could occur, and the proper course of action.

Specialized Fire Safe Shutdown (FSS) procedures directing activities to bring a unit to a safe and stable condition following a fire (if required) detail which equipment can be relied upon for performing the required steps, dependent on the location of the fire.

13.6.4 Maintenance Instructions

The plant maintenance program is designed to safely and efficiently provide maintenance and repair to keep the plant in good operating order. Maintenance is initiated through the maintenance/work request and a preventive maintenance program. Safe working conditions are assured by the use of TVA's Hold Order, Clearance, and Radiation Work Permit procedures. Complex maintenance operations require step-by-step performance and therefore are detailed in written instructions. These instructions, covering mechanical, electrical, and instrumentation maintenance will provide information to assure proper coordination of operating and maintenance personnel as well as step-by-step procedures for items such as removal and installation of control rod drives.

13.6.5 Radiological Emergency Plan

13.6.5.1 General

The Radiological Emergency Plan contains the precautionary planning, delegation of authority and responsibility, and implementing procedures to protect the public, plant employees, and equipment in case of unusual incidents. The plan contains information for control of emergency conditions modeled after those contained in NUREG-0654, Rev. 1 and Regulatory Guide 1.101, Rev. 3 as appropriate.

13.6.5.2 Radiological Emergency Plan

The Radiological Emergency Plan provides that the Shift Manager on duty is responsible for placing the plan in effect based on conditions listed in the implementing procedures. Upon declaration of an emergency, the Shift Manager provides for notification of the designated people, and assumes the duties of site emergency director until relieved by the plant manager or an alternate.

The emergency organization is as described in the Radiological Emergency Plan, and staffed by pre-selected, experienced personnel. The entire plant facilities and personnel, as well as other TVA organizations, are at the site emergency director's disposal. Adequate qualified personnel are available to staff the emergency organization around the clock until the emergency is over. Advance plans and arrangements have been made in conjunction with state and local authorities, where applicable, for warning the local populace of an emergency and possible evacuation, evacuating the area around the plant site, preventing entry of the public to affected areas, medical care of injured or exposed personnel, surveying affected areas for radioactivity, and restricting use of water supplies and foods.

The plant emergency organization will be controlled from the Technical Support Center. This center is adequately shielded to ensure it is occupiable throughout an

incident. Communications consist of a dedicated emergency telephone system and the TVA radio system. The Technical Support Center contains area maps, plant drawings, copies of the emergency plan and necessary emergency supplies and equipment. The overall TVA emergency organization is controlled from the Central Emergency Control Center in Chattanooga.

Additional emergency supplies and equipment are stored in various plant locations. One vehicle is fully equipped for area radiological surveillance duty.

When an emergency notification is received, all personnel with emergency duty assignments report to the director and assume preassigned duties. All other personnel will normally remain at their work stations, unless accountability is required. They then assemble in a designated area and wait for further instructions.

Radiation surveillance teams and other emergency personnel will survey affected areas and report to the director who will evaluate the situation and take appropriate actions as outlined in the emergency plan. Complete details are available in the Radiological Emergency Plan and Emergency Plan Implementing Procedures.

13.6.6 Radiation Control Instructions

These procedures provide guidance for the protection of employees and the public from nuclear radiation and contamination. Applicable requirements of the NRC, as published in Title 10, Code of Federal Regulations, Part 20 and 30, and regulations of the Department of Transportation have been incorporated.

13.6.7 Surveillance Instructions

These instructions cover periodic tests and inspections required by the technical specifications to assure proper operations, and to prove the adequacy and availability of critical systems and equipment. Formalized schedules and check sheets are used to ascertain that all critical equipment and safeguards systems will satisfy their design intent.

Test schedules and records will be maintained so as to provide an orderly test and surveillance program.

13.6.8 Technical Instructions

Instructions concerning analytical techniques, calculations, and test procedures will be prepared as required. Examples are chemical control procedures (chemical

instructions) which provide plant personnel with instruction on the types and frequency of chemical and radiochemical analysis, steps to be taken to maintain conditions within established limits, reactor calculations procedures, and test procedures on CSSC equipment beyond that required by technical specifications. The plant computer normally will perform the calculations and assessments on the reactor core and primary system to assure that the reactor is operated safely and efficiently within limits specified by the technical specifications. The reactor calculation procedures outline the backup calculations necessary to assure overall compliance when the computer is unavailable.

Fuel Accountability Procedures delineating the requirements, responsibilities, and methods of nuclear material control from the time new fuel is received until such time as it is shipped from the plant as spent fuel are contained within the technical procedures. They provide detailed steps for physical safeguards, inventory, accounting, and for preparing reports to the Nuclear Regulatory Commission.

13.6.9 Security Plan Procedures

Procedures for implementing the plant Physical Security Plan are prepared as required. Included are procedures regarding badging, access control, search requirements, posting of personnel, keys and locks, lighting, and reporting requirements.

13.6.10 Special Test Instructions

Instructions for special activities which are normally performed one time are not covered by existing plant instructions. These are prepared as required.

13.6.11 Modification/Addition Instructions

Routine continuing requirements for fabrication, installation, and checkout of materials and components concerning plant modifications are placed in modification/addition instructions. Typically included are instructions regarding supports, bolting, coatings, cabling, and electrical terminations.